**6th Semester Project - Agroproducts Price Predictor**

**Functional Document**

**INTRODUCTION**

This project focuses on the development of an AI/ML-based Agroproducts Price Prediction System aimed at supporting the agricultural ecosystem. The goal is to assist farmers, traders, policymakers, and other stakeholders with accurate, data-driven insights about commodity prices, enabling smarter decisions and market resilience.

**PRODUCT GOAL**

The core goal is to create a user-friendly and intelligent platform that provides real-time and forecasted price data of agricultural products, integrates weather insights, sends alerts, and enables interaction via chatbot — all aimed at promoting transparency and sustainability in agriculture.

**DEMOGRAPHY (USERS, LOCATION)**

**Users**

* Target Users: Farmers, traders, policymakers, analysts, students
* User Characteristics: Varying levels of digital and financial literacy

**Location**

* Primary Target: India (initial deployment)
* Future Target: Other agriculture-dominant regions globally

**BUSINESS PROCESSES**

Key business processes include:

* **User Access and Authentication**: Login-based access to dashboards and features
* **Price Prediction**: ML-driven model forecasts commodity prices using historic and real-time data
* **Crop Recommendation**: Month-based advisory for best crops to grow
* **Chatbot Assistant**: AI-enabled assistance for queries
* **Prediction History**: Records and downloads of past predictions

**FEATURES**

This sprint will focus on implementing the following key features:

**Feature #1: Price Prediction System**

* **Description**: Predict future prices of agricultural commodities based on historical data and other influencing factors
* **User Story**: As a User, I want to predict the future prices of agricultural products so that I can plan accordingly.

**Feature #2: Visual Graph Representation**

* **Description**: Graph showing actual vs predicted prices for better user understanding
* **User Story**: As a User, I want to see a visual graph of actual and predicted prices so that I can understand price trends better.

**Feature #3: Chatbot Assistant**

* **Description**: AI-based conversational assistant for help and FAQs
* **User Story**: As a User, I want to ask questions to a chatbot assistant so that I can get quick answers related to agriculture and crop prices.

**Feature #4: Crop Recommendation**

* **Description**: Monthly crop advisory based on best planting cycles
* **User Story**: As a User, I want to get crop recommendations based on the current month so that I can know which crops are best to grow.

**Feature #5: Prediction History**

* **Description**: Access and download previous predictions
* **User Story**: As a User, I want to view and download the history of my past predictions so that I can keep records for future reference.

**6. Authorization Matrix (Not Implemented, to be Added if Scaled Up)**

| **Role** | **Access Level** |
| --- | --- |
| Admin | Full access to all models, data, user management |
| Analyst | Access to accuracy reports and model metrics |
| Farmer | Access to price forecasts, crop recommendations, chatbot |
| Trader | Access to historical trends, forecast visualizations |
| Government | Access to alert systems, policy dashboards |
| Student | Access to general predictions, references, chatbot |

**7. Assumptions**

* Users will have basic internet access for using the web interface
* Reliable historical price and weather data is available for ML training
* Stakeholders will provide periodic feedback
* Python will be used for backend model development; HTML/CSS for frontend
* Data privacy and security will be considered from the initial phase